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CALCULUS.

185. Proposed by A. H. HOLMES, Brunswick, Maine.

Required the perpendicular height of a right cone, radius of base being unity, such that the maximum ellipse that can be cut from the cone shall equal the base of the cone in area.

186. Proposed by Editor EPSTEEN.

Evaluate $\int_0^{\infty} \frac{\sin my}{y} dy, \quad \int_0^{\infty} \frac{\cos my}{y} dy.$

GROUP THEORY.

6. Proposed by L. E. DICKSON, Ph. D., The University of Chicago.

Show that the binary substitutions on ξ_1, η_1 , the binary substitutions on ξ_2, η_2 , and $(\xi_1\xi_2)(\eta_1\eta_2)$ generate a maximal subgroup of the quaternary abelian group.

MISCELLANEOUS.

146. Proposed by F. P. MATZ, Ph. D., Sc. D.

Given $\begin{cases} a\cos\alpha + b\sin\alpha = c \\ a\cos\beta + b\sin\beta = c \end{cases}$ to prove that

$$\sin(\alpha + \beta) = \frac{2ab}{a^2 + b^2}, \text{ and } \cot\alpha + \cot\beta = \frac{2ab}{c^2 - a^2}.$$

NOTES.

Mr. H. R. Willard has been appointed instructor in Mathematics in the University of Maine.

Mr. C. A. Holden has been appointed assistant professor of Mathematics in Dartmouth College.

Dr. C. Gunderson has been appointed instructor in Mathematics in the Michigan Agricultural College.

Mr. C. H. Sisam has been appointed instructor in Mathematics at the U. S. Naval Academy, Annapolis.

Mr. W. D. Cairns has been promoted to an associate professorship in Mathematics at Oberlin College.

Prof. T. F. Nichols, of Hamilton College, has been promoted to a full professorship of Applied Mathematics.

Miss M. E. Sinclair and Mr. C. Havemeyer have been appointed instructors in Mathematics in the University of Nebraska.

Dr. George H. Hallett has been promoted to an assistant professorship of Mathematics in the University of Pennsylvania.

Mr. N. R. Wilson, lecturer in Mathematics in Wesley College, Winnipeg, Manitoba, is doing advanced work at the University of Chicago.

Prof. T. E. Holgate of the department of Mathematics of Northwestern University, has been appointed acting President of the University.

Dr. E. M. Blake, instructor in Mathematics in the University of California, has accepted the chair of Mathematics in the University of Arizona.

Professor Vining of Brandon College, Brandon, Manitoba, has been granted a leave of absence for two years. His place is temporarily filled by Dr. H. E. Jordan.

BOOKS.

Lehrbuch der Differenzenrechnung by D. Seliwanoff. B. G. Teubner, Leipzig, 1904. 92 pp.

At the request of the well known Leipzig publishers, B. G. Teubner, the author has elaborated his article on Finite Differences in the *Encyklopaedie der Mathematischen Wissenschaften*, Vol. 1, pp. 918-937, to the dimensions of a book. Thus, while the encyclopaedia gives but one page to the approximate evaluation of definite integrals and four pages to the subject of difference equations, the book devotes six pages to the former and twenty-nine pages to the latter. The gain in perspicuity over the encyclopaedia article is therefore considerable and indeed, although the author omits certain questions which might well be taken up, the subjects which he treats are presented in a delightfully clear and simple manner.

The books of Boole and Markoff are more complete, but this work of Seliwanoff should be regarded not as a handbook for one who is familiar with the subject, but as a text book for the beginner who desires to learn the *technique* of computation, such as the methods of interpolation, construction of tables, estimation of unavoidable errors.

Part I devotes thirty-two pages to the subject of Differences. After developing some of the most important general theorems in Chapter 1, the question of Interpolation is taken up in Chapter 2 where the author considers exact and approximate interpolation, computation of the roots of numerical equations, and the computation of logarithms and antilogarithms. The methods of evaluation of definite integrals in Chapter 3 are all very elementary, culminating with Simpson's Formula.

In Part II, Chapter 1 treats the subject of Indefinite and Definite Summation. According to the conventional usage the symbol Σ is employed as the Calculus analog of the sign of integration \int . In the opinion of the reviewer the symbol S would serve the purpose somewhat better. First, the use of the Greek letter as a functional symbol, where the (finite) integration is not possible, is a departure from its recognized meaning in various domains of analysis; second, the letter S corresponds somewhat closer to the